UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,385	10/28/2003	Simon Edwin Crouch	300203669-2	6815

7590 11/17/2006

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
KENNEDY, ADRIAN L	

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,385	CROUCH, SIMON EDWIN	
	Examiner	Art Unit	
	Adrian L. Kennedy	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *1,8, and 9* is/are withdrawn from consideration.

5)☒ Claim(s) *10-19* is/are allowed.

6)☒ Claim(s) *20-24* is/are rejected.

7)☒ Claim(s) *2-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Detailed Office Action

1. **Claims 1-24** were originally presented.

2. **Claims 1, 8, and 9** were cancelled.

3. **Claims 2, 6, 7, 10, 12, and 24** were amended.

4. **Claims 2-7, and 10-24** will be examined.

Claim Objections

5. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 2-7 have not been renumbered by the examiner. The examiner requests that the applicant submit an appropriate correction.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Aussem ("Call Admission Control in ATM Networks with the Random Neural Network").

Regarding claim 23:

Aussem teaches a method of managing the operation of a distributed network of dataprocessors (Abstract), the method comprising: prior to the execution of a desired operation on the distributed network, assigning a plurality of neural network functions to at least a sub-set of the distributed dataprocessors (page 2482, Introduction, paragraph 2; neural network modeling is run on the switches of the queuing network), the neural network functions being arranged such that the sub-set of distributed dataprocessors is operative to model the operation of the entire distributed network of dataprocessors (page 2486, chapter 4, lines 1-5; neural network located on switch nodes models the entire queuing network); modelling the operation of the distributed network in response to the desired operation on the sub-set of distributed dataprocessors (page 2482, chapter 1, paragraph 2; the subset of distributed dataprocessors is disclosed as switches); and where the modeled response fall outside predetermined criteria, modifying the desired operation on the distributed network of dataprocessors (page 2482, chapter 1, paragraph 3, disclosed by reiterating the algorithm after modifying weights).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aussem et al. ("Queueing Network Modelling with Distributed Neural Networks for Service"; referenced as *Aussem*) in view of Aussem ("Call Admission Control in ATM Networks with the Random Neural Network"; referenced as *Aussem II*).

Regarding claim 22:

Aussem teaches the following:

> A method of modelling the response of a network, the network comprising a plurality of interconnected data processors (Abstract, models a queuing network), the method comprising operating at least a portion of the plurality of data processors in accordance with a set of neural network algorithms in response to an input to the network to provide an output (page 392, Introduction, paragraph 2), the neural network algorithms being arranged such that the output is indicative of the expected response of the entire network to the input (page 392, Introduction, paragraph 2, a complete queuing system is modeled by a feedforward neural network, this implies that the network models its own response to actions of queuing input traffic)...

Aussem does not teach the following;

> the input is representative of a planned action to transfer functionality of a data processor in the network and if the output shows that the another data processor is not capable of performing the functionality, the planned action is modified to transfer the functionality to a different data processor.

However, *Aussem II* does teach

...the input is representative of a planned action to transfer functionality of a data processor in the network (page 2482; Section 1; "*a few weights are "manually" updated along a route*"; The examiner takes the position that the manually updating of weights for the purpose of exhausting all possible routes aims to modify which switches the call passes through in route to its final destination and in modifying the active switches the input transfer functionality between the various switches.) and if the output shows that the another data processor is not capable of performing the functionality, the planned action is modified to transfer the functionality to a different data processor (page 2482; Section 1; "*the procedure is reiterated until the set of route candidates is exhausted*" and "*the minimum delay is then compared to a function of the user service quality factor*"; The examiner takes the position that the modification of weights until all possible routes are exhausted, and requiring that a minimum delay be a certain value, anticipates the transferring of functionality amongst dataprocessor until a functional dataprocessor is reached in applicant's claimed invention).

The examiner takes the position that both *Aussem* and *Aussem II* are analogous in the art of modeling a network. Therefore it would have been obvious to one skilled in the art at the time of invention to combine the teachings of *Aussem* with the teachings of *Aussem II* for the purpose of modeling a network (*Aussem II*; Abstract; "*modelling each queuing system*").

Regarding claim 24:

Aussem teaches the following:

A network of dataprocessors comprises a plurality of interconnected dataprocessors (Abstract, models a queuing network), each of a subset of the plurality of dataprocessors being arranged to execute at least one neural network function such that the subset of dataprocessor is operable to emulate the functionality of the plurality of dataprocessors (page 392, Introduction, paragraph 2; a complete queuing system is modeled by a feedforward neural network)...

Aussem does not teach the following:

...in response to an input to the network to provide an output, the at least one neural network function being arranged such that the output is indicative of the expected response of the entire network to the input, wherein the input is representative of a planned action to transfer functionality of a data processor to another dataprocessor in the network an if the output shows that the another data processor is not capable of performing the functionality, the planned action is modified to transfer the functionality to a different dataprocessor.

However, Aussem II does teach

in response to an input (page 2482; Section 1; "*a few weights are "manually" updated along a route*") to the network to provide an output, the at least one neural network function being arranged such that the output is indicative of the expected response of the entire network to the input (page 2482; Section 1; "*desired quality of service*"), wherein the input is representative of a planned action to transfer functionality of a data processor to another dataprocessor in the network an if the output shows that the another data processor is not capable of performing the functionality, the planned action is modified to

transfer the functionality to a different dataprocessor (page 2482; Section 1; "*the procedure is reiterated until the set of route candidates is exhausted*" and "*the minimum delay is then compared to a function of the user service quality factor*"; The examiner takes the position that the modification of weights until all possible routes are exhausted, and requiring that a minimum delay be a certain value, anticipates the transferring of functionality amongst dataprocessor until a functional dataprocessor is reached in applicant's claimed invention).

The examiner takes the position that both *Aussem* and *Aussem II* are analogous in the art of modeling a network. Therefore it would have been obvious to one skilled in the art at the time of invention to combine the teachings of *Aussem* with the teachings of *Aussem II* for the purpose of modeling a network (*Aussem II*; Abstract; "*modelling each queuing system*").

Allowable Subject Matter

Claims 10-19 are allowable because the prior art of record taken alone or in combination fails to teach that the resulting network is isomorphic to a predetermined sub-network of the network nodes.

Claims 2-7 are presently objected as being improperly numbered. The claims would be allowable if properly numbered.

Response to Arguments

Applicant's arguments filed on August 30, 2006 have been fully considered but they are not persuasive. The unpersuasive arguments made by the Applicant are stated below:

In reference to Applicant's argument:

> Applicant respectfully submits that independent claim 20 is allowable for at least the reason that *Aussem II* does not disclose, teach, or suggest at least a "submitting a task allocation for execution by the network; executing a distributed modelling algorithm on the network, the modelling algorithm being arranged to model the response of the distributed network itself to the submitted task allocation; and determining if the modeled response is acceptable and if so allocating the submitted task to the network," as recited in claim 20.
>
> For example, *Aussem II* fails to teach or suggest that a task allocation is submitted is submitted to network and before allocation the task to network. Rather, *Aussem II* seemingly discloses modeling a network but does not use the model to determine whether to allocate a submitted task to a network.

Examiner's response:

The examiner takes the position that the Applicant's primary argument, regarding claims 20 and 21, is that *Aussem II* ("Call Admission Control in ATM Networks with the Random Neural Network") "does not use the model to determine whether to allocate a submitted task to a network." The examiner asserts that a task is taught as a call (Abstract) in the *Aussem II* reference and a network is the Queuing System (page 2483, section 2.1) in the *Aussem II* reference. Having thoroughly re-considered the *Aussem II* reference, the examiner understands the *Aussem* reference to be a method of using a Random Neural Network to model whether a call (task) should be accepted (allocated) or rejected (not allocated) by a Queuing System (network) based on a user's service quality factor (measure of acceptability) in relation to the Random Neural Network's modeled outcome (modeled response).

In reference to Applicant's argument:

> Applicant respectfully submits that independent claim 20 is allowable for at least the reason that *Aussem II* does not disclose, teach, or suggest at least a "submitting a task allocation for execution by the network; executing a distributed modelling algorithm on the network, the modelling algorithm being arranged to model the response of the distributed network itself to the submitted task allocation; and determining if the modeled response is acceptable and if so allocating the submitted task to the network," as recited in claim 20.
>
> For example, *Aussem II* fails to teach or suggest that a task allocation is submitted is submitted to network and before allocation the task to network. Rather, *Aussem II* seemingly discloses modeling a network but does not use the model to determine whether to allocate a submitted task to a network.

Examiner's response:

The examiner takes the position that the Applicant's primary argument, regarding claims 20 and 21, is that Aussem II ("Call Admission Control in ATM Networks with the Random Neural Network") "does not use the model to determine whether to allocate a submitted task to a network." The examiner asserts that a task is taught as a call (Abstract) in the Aussem II reference and a network is the Queuing System (page 2483, section 2.1) in the Aussem II reference. Having thoroughly re-considered the Aussem II reference, the examiner understands the Aussem reference to be a method of using a Random Neural Network to model whether a call (task) should be accepted (allocated) or rejected (not allocated) by a Queuing System (network) based on a user's service quality factor (measure of acceptability) in relation to the Random Neural Network's modeled outcome (modeled response).

Based on this understanding of the Aussem II the examiner finds the applicant's argument's to be non-persuasive and maintains the position that Aussem II anticipates the invention of claims 20 and 21.

In reference to Applicant's argument:

> Applicant respectfully submits that independent claim 23 is allowable for at least the reason that *Aussem II* does not disclose, teach, or suggest at least "prior to the execution of a desired operation on the distributed network, assigning a plurality of neural network functions to at least a sub-set of the distributed

dataprocessors, the neural network functions being arranged such that the sub-set of distributed dataprocessors is operative to model the operation of the entire distributed network of dataprocessors; modelling the operation of the distributed network in response to the desired operation on the sub-set of distributed dataprocessors; and where the modeled response falls outside predetermined criteria, modifying the desired operation prior to execution of the modified operation on the distributed network of datproccessors, " as recited in claim 22.

For example, *Aussem II* fails to teach or suggest that a task allocation is submitted to a network and before allocating the task to the network, a modelling algorithm is used to model the response of the task allocation on the network. Rather, Aussem II seemingly discloses modeling a network but does not use the model to determine whether to allocate a submitted task to a network. Further, the Office Action suggest a teaching of reiterating the algorithm after modifying weights discloses "modifying the desired operation prior to execution of the modified operation," as recited in the claim. Applicant respectfully disagrees since modification of weights affects the modeling algorithm but does not change the operation of the network that is being modeled.

Examiner's response:

The examiner previously responded to the Applicant's argument that *Aussem II* "does not use the model to determine whether to allocate a submitted task to a network", and found this argument to be non-persuasive.

In regards to Applicant's argument that the "modification of weight affects the modeling algorithm but does not change the operation of the network that is being modeled", the examiner takes the position that it is inherent in the teaching of *Aussem II* that the modification of the model weights affect the operation of the network that is being modeled. This position is based on the *Aussem II* reference teaching that the weights are modified along the route from a call request to its final destination (page 2483, section 1), and these modification are made until all possible routes the call can make are exhausted. In re-iteratively modifying the weights, the minimum estimated delay along the route taken by the call is calculated and compared to a function of user service quality (page 2483, section 1).

Having considered the Applicant's arguments, the examiner finds that the modification of the weights, as taught by Aussem II not only changes the operation of the network, but is the

primary method of changing the network the network operation. This position is based on the fact that varying the weights, varies the minimum estimated delay, and the minimum estimated delay is the value generated by the network which determines a user's satisfaction with the route taken by the call, and also whether the call is to be accepted (allocated) or rejected (not allocated).

Furthermore, in regards to claim 23, the examiner finds the applicant's arguments to be non-persuasive, and maintains the previously set forth rejection

In reference to Applicant's argument:

> Applicant respectfully submits that independent claim 22 is allowable for at least the reason that *Aussem* does not disclose, teach, or suggest at least "wherein the input is representative of a planned action to transfer functionality of a data processor to another data processor in the network and if the output shows that the another data processor in the network and if the output shows that the another data processor is not capable of performing the functionality, that planned action is, modified to transfer the functionality to a different data processor," as recited in claim 22.

Examiner's response:

The examiner takes the position that the Applicant's primary argument is that *Aussem* ("Queueing Network Modelling with Distributed Neural Networks for Service Quality Estimation in B-ISDN Networks") does not disclose, teach, or suggest at least "wherein the input is representative of a planned action to transfer functionality of a dataprocessor to another data processor in the network and if the output show that another dataprocessor is not capable of performing the functionality, the planned action is modified to transfer the functionality to a different dataprocessor." The examiner has found that *Aussem* alone does not teach the method of amended claim 22.

However, *Aussem II* in combination with *Aussem* does teach the method of claim 22, as set forth in the newly established rejection under 35 U.S.C. 103.

In reference to Applicant's argument:

> Applicant respectfully submits that independent claim 24 is allowable for at least the reason that *Aussem* does not disclose, teach, of suggest at least a "subset of dataprocessors [being] operable to emulate the functionality of the plurality of dataprocessors in response to an input to the network to provide an output, the at least one neural network function being arranged susch that the output is indicative of the expected response of the entire network to the input, wherein the input is representative of a planned action to transfer functionality of a dataprocessor to another dataprocessor in the network and if the output shows that another dataprocessor is not capable of performing the functionality, the planned action is modified to transfer the functionality to a different dataprocessor," as recited in claim 24

Examiner's response:

The examiner takes the position that the Applicant's primary argument is that *Aussem* does not disclose, teach, or suggest at least a "subset of dataprocessors [being] operable to emulate the functionality of the plurality of dataprocessors in response to an input to the network to provide an output, the at least one neural network function being arranged such that the output is indicative of the expected response of the entire network to the input, wherein the input is representative of a planned action to transfer functionality of a dataprocessor to another dataprocessor in the network and if the output shows that the another dataprocessor is not capable of performing the functionality, the planned action is modified to transfer the functionality to different dataprocessor." The examiner has found that *Aussem* alone does not teach the method of amended claim 24.

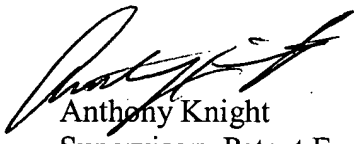
However, *Aussem II* in combination with *Aussem* does teach the method of claim 24, as set forth in the newly established rejection under 35 U.S.C. 103.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The examiner can normally be reached on Mon -Fri 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK



Anthony Knight
Supervisory Patent Examiner
Technology Center 2100